

Claims

1. Protein or polypeptide having fibrinogen binding activity, characterized in that said protein or polypeptide originates from a coagulase-negative staphylococcal strain.

5 2. Recombinant DNA molecule containing a nucleotide sequence coding for a protein or polypeptide having fibrinogen binding activity, characterized in that said protein or polypeptide originates from a coagulase-negative staphylococcal strain.

3. Plasmid, phage or phagemid containing a nucleotide sequence coding for a protein or polypeptide having fibrinogen binding activity, characterized in that said protein or polypeptide originates from a coagulase-negative staphylococcal strain.

10 4. Micro-organism containing at least one recombinant DNA molecule according to claim 2.

5. Micro-organism containing at least one plasmid, phage or phagemid according to claim 3.

15 6. Method for producing a fibrinogen binding protein or a polypeptide thereof, characterized in that

- at least one recombinant DNA molecule according to claim 2 is introduced in a micro-organism,

- said micro-organism is cultured in a suitable medium,

- the protein thus formed is isolated by chromatographic purification.

20 7. Method for producing a fibrinogen binding protein or polypeptide thereof, characterized in that

- at least one recombinant protein according to claim 2 is expressed on a phage particle,

- said phage particle shows fibrinogen binding activity.

8. Recombinant DNA molecule according to claim 2, characterized in that said DNA molecule contains one or more of the following nucleotide sequences:

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1   TCTAGTGATGAAGAAAAGAATGATGTGATCAATAATAATCAGTCAATAAA
5  51  CACCGACGATAATAACCAAATAATTAAAAAGAAGAAACGAATAACTACG
   101  ATGGCATAGAAAAACGCTCAGAAGATAGAACAGAGTCAACAACAAATGTA
   151  GATGAAAACGAAGCAACATTTTACAAAAGACCCCTCAAGATAATACTCA
   201  TCTTACAGAAGAAGAGGTAAGAATCCTCATCAGTCGAATCCTCAAATT
   251  CATCAATTGATACTGCCCAACAACCATCTCACACAACAATAAATAGAGAA
10  301  GAATCTGTTCAAACAAGTGATAATGTAGAAGATTACACAGTATCAGATTT
   351  TGCTAACTCTAAAATAAAAGAGAGTAACACTGAATCTGGTAAAGAAGAGA
   401  ATACTATAGAGCAACCTAATAAAGTAAAAGAAGATTCAACAACAAGTCAG
   451  CCGTCTGGCTATACAAATATAGATGAAAAAATTTCAAATCAAGATGAGTT
   501  ATTAAATTTACCAATAAATGAATATGAAAATAAGGCTAGACCATTATCTA
15  551  CAACATCTGCCCAACCATCGATTAAACGTGTAACCGTAAATCAATTAGCG
   601  GCGGAACAAGGTTTGAATGTTAACCATTTAATTAAAGTTACTGATCAAAG
   651  TATTACTGAAGGATATGATGATAGTGAAGGTGTTATTAAAGCACATGATG
   701  CTGAAAACCTTAATCTATGATGTAACCTTTTGAAGTAGATGATAAGGTGAAA
   751  TCTGGTGATACGATGACAGTGGATATAGATAAGAATACAGTTCCATCAGA
20  801  TTTAACCGATAGCTTTACAATACCAAAAAATAAAAGATAATTCTGGAGAAA
   851  TCATCGCTACAGGTACTTATGATAACAAAAATAAACAAATCACCTATACT
   901  TTTACAGATTATGTAGATAAGTATGAAAATATTAAAGCACACCTTAAATT
   951  AACGTCATACATTGATAAATCAAAGGTTCCAAATAATAATACCAAGTTAG
  1001  ATGTAGAATATAAAACGGCCCTTTTCATCAGTAAATAAAACAATTACGGTT
25  1051  GAATATCAAAGACCTAACGAAAATCGGACTGCTAACCTTCAAAGTATGTT
   1101  TACAAATATAGATACGAAAAATCATAACAGTTGAGCAAACGATTTATATTA
   1151  ACCCTCTTCGTTATTCAGCCAAGGAAACAAATGTAAATATTTTCAGGGAAT
   1201  GGTGATGAAGGTTCAACAATTATAGACGATAGCACAAATAATTAAAGTTTA
   1251  TAAGGTTGGAGATAATCAAAATTTACCAGATAGTAACAGAATTTATGATT
30  1301  ACAGTGAATATGAAGATGTCACAAATGATGATTATGCCCAATTAGGAAAT
   1351  AATAATGATGTGAATATTAATTTTGGTAATATAGATTCACCATATATTAT
   1401  TAAAGTTATTAGTAAATATGACCCTAATAAGGATGATTACACGACTATAC
   1451  AGCAAACCTGTGACAATGCAGACGACTATAAATGAGTATACTGGTGAGTTT
   1501  AGAACAGCATCCTATGATAATACAATTGCTTTCTCTACAAGTTCAGGTCA
35  1551  AGGACAAGGTGACTTGCCCTCTGAAAAAATTTATAAAATCGGAGATTACG
   1601  TATGGGAAGATGTAGATAAAGATGGTATTCAAATAACAAATGATAATGAA
   1651  AAACCGCTTAGTAATGTATTGGTAACCTTTGACGTATCCTGATGGAACCTC
  1701  AAAATCAGTCAGAACAGATGAAGATGGGAAATATCAATTTGATG
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40 or homologues thereof.

9. Recombinant DNA molecule according to claim 2, characterized in that said DNA molecule encodes one or more of the following amino acid sequences:

1 SSDEEKNDVINNNQSINTDDNNQIIKKEET
31 NNYDGLIEKRSEDRTESTTNVDENEATFLQK
5 61 TPQDNTHLTEEEVKESSESSVESSNSIDTAQ
91 QPSHTTINREESVQTSDNVEDSHVSDFANS
121 KIKESNTESGKEENTIEQPNKVKEDSTTSQ
151 PSGYTNIDEKISNQDELLNLPINEYENKAR
181 PLSTTSAQPSIKRVTVNQLAAEQGSNVNHL
10 211 IKVTDQSITEGYDDSEGVKAHDAENLIYD
241 VTFEVDDKVKSGDTMTVDIDKNTVPSDLTD
271 SFTIPKIKDNSGEIIATGTYDNKNKQITYT
301 FTDYVDKYENIKAHLKLTSYIDKSKVPNNN
331 TKLDVEYKTALSSVNKTITVEYQRPENRT
15 361 ANLQSMFTNIDTKNHTVEQTIYINPLRYSA
391 KETNVNISGNGDEGSTIIDDSTIIKVYKVG
421 DNQNLPSNRIDYSEYEDVTNDDYAQLGN
451 NNDVNINFGNIDSPYIIKVISKYDPNKDDY
481 TTIQQTVTMQTTINEYTGEFRTASYDNTIA
20 511 FSTSSGQGQGDLPPEKTYKIGDYVWEDVDK
541 DGIQNTNDNEKPLSNVLVTLTPDGTSKSV
571 RTDEDGKYQFD

10. Plasmid, phage or phagemid containing one or more nucleotide sequences according to claim 8 or homologues thereof.

11. Micro-organism containing at least one plasmid, phage or phagemid according to claim 9.

12. The use of an extractable fraction of staphylococci to block the adherence of staphylococci to surfaces with immobilised fibrinogen.

13. The use of the native fibrinogen binding protein or parts thereof from staphylococci to block the adherence of staphylococci to surfaces with immobilised fibrinogen.

14. The use of a protein according to claim 1 or parts thereof to block the adherence of staphylococci to surfaces.

15. The use of an immobilised protein according to claim 1 or fragments thereof to isolate or detect fibrinogen in solutions.

16. The use of a gene encoding a protein according to claim 1 or parts thereof for diagnostic purposes, e.g. to detect the presence of *S. epidermidis* and/or determine the type of organism present in a sample.

17. Antibodies raised against a protein according to claim 1 or against a peptide, encoded

by the DNA sequence according to claim 8.

18. The use of antibodies according to claim 17 for diagnostic purposes.

19. The use of antibodies according to claim 17 for therapeutic and prophylactic purposes.

20. The use of antibodies against the extractable fraction of staphylococci to block the
5 adherence of staphylococci.

21. The use of antibodies against the native fibrinogen binding protein from staphylococci
to block the adherence of staphylococci.

22. The use of antibodies against a protein according to claim 1 or parts thereof to block
the adherence of staphylococci.

10 23. The use of a fibrinogen binding protein or parts thereof from staphylococci as an
immunogen.

24. The use of a protein according to claim 1 or parts thereof as an immunogen.

25. Vaccine composition including a protein according to claim 1.

26. Vaccine composition including a DNA sequence according to claim 8.

15 27. Method of active immunisation including the administration of a protein according to
claim 1 to a mammal.

28. Method of active immunisation including the administration of a DNA sequence
according to claim 8, to a mammal.

20 29. Method of passive immunisation including the administration of antibodies, raised
against a protein according to claim 1 or against a peptide, encoded by a DNA sequence according
to claim 8, to a mammal.

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by the DNA sequence according to claim 8.

18. The use of antibodies according to claim 17 for diagnostic purposes.

19. The use of antibodies according to claim 17 for therapeutic and prophylactic purposes.

5 20. The use of antibodies against the extractable fraction of staphylococci to block the adherence of staphylococci.

21. The use of antibodies against the native fibrinogen binding protein from staphylococci to block the adherence of staphylococci.

22. The use of antibodies against a protein according to claim 1 or parts thereof to block the adherence of staphylococci.

10 23. The use of a fibrinogen binding protein or parts thereof from staphylococci as an immunogen.

24. The use of a protein according to claim 1 or parts thereof as an immunogen.

25. Vaccine composition including a protein according to claim 1.

26. Vaccine composition including a DNA sequence according to claim 8.

15 27. Method of active immunisation including the administration of a protein according to claim 1 to a mammal.

28. Method of active immunisation including the administration of a DNA sequence according to claim 8, to a mammal.

20 29. Method of passive immunisation including the administration of antibodies, raised against a protein according to claim 1 or against a peptide, encoded by a DNA sequence according to claim 8, to a mammal.